

The Army's BID when compared with the proposed Pet Supp outline has such strong points of similarity in the factors covered that it may well have been one of the contributing bases for the latter. This is not to say that it is identical; there is a broader scope to the supplement than to the BID, which tends to be limited to Army's direct missions, operations and planning, and to related elements.

Navy's Monograph Index Guide, as regards Pet Int, is duplicative of elements of BID, except for a few notable points of expansion and emphasis. These are:

- (1) Requirement for information on petroleum self-sufficiency or import dependence, and foreign supply sources.
- (2) Requirement for more definitive treatment of information on vulnerability of storage facilities to attack, including such matters as fire protection.
- (3) A greater expressed interest in use potentialities for our own forces and defensibility in relation thereto.

The Petroleum Committee of the Munitions Board (formerly the Armed Services Petroleum Board) can be regarded as having expressed its sphere of interest in two documents: to a limited extent in its request on OCD, CIA for certain categories of information, and to a much greater extent in the Memorandum from the Secretary of Defense converting it to its present status, which charter is understood to have been prepared by the Petroleum Committee. Both of these documents set forth interests which are covered by the Pet Suppl outline.

Petroleum Intelligence, Needs and provisions for Fulfillment.

The two factors omitted from the Interim Report on Petroleum Intelligence which appear to be critical to its conversion into completed staff work on the subject are the coverage needed including study of interests and of expressed directives for fulfillment, and the responsibilities and capabilities of CIA to provide what is needed as finished intelligence.

The outlines of Chapter 62 c, NIS, and of the proposed Petroleum Supplement to NIS provide the basis for assessing the scope of effort which CIA itself (through its Petroleum Expert) recognizes as being applicable.

Departmental interests in the field have been variously expressed. No conversations have been held with Departmental people, so far as is known, to determine their programming, planning, or specific desires in aid of this study. The Petroleum Expert has ideas on the subject, largely gathered from his inter-departmental operations, but these have taken a form not susceptible to definitive use as a criterion of departmental desires. Published charters of various kinds have given only general guidance and these can not be regarded as definitive either.

Army, Navy, and the Petroleum Board, on the other hand have placed on record their requirements in such a fashion as to afford a comprehensive key to their interests and, accordingly, to the matters on which they will ~~be interested~~ desire petroleum intelligence. State probably has similar expression in the process of preparation.

On the basis of all these documents, careful study leads to the conclusion that the proposed outline for the Pet Supp covers all those elements of required Pet Int of which we presently have knowledge. In extension of this reasoning, and before a final version of the Pet Int study is made, it is recommended that a programming survey of the interests and desires of the IAC agencies be undertaken. This may bring forth added factors of interest.

As to CIA's capacity to produce those elements of Pet Int not being produced departmentally, and to present coordinated national intelligence in this field, it appears that Commander Owens' conclusions, when coupled with the projected reorganization of G/Es would, if implemented, afford the mechanics for doing all that needs doing in this field. This conclusion necessarily is premature, however, inasmuch as only a full exploration of the production requirements and programming desires of the IAC can definitely establish the extent of the task which will fall to CIA. Accordingly it is recommended that final decision remain in abeyance until the suggested programming survey is complete.

C. PETROLEUM

1. Crude petroleum and natural gas.

a. Strategic supply position (Analyze degree of self-sufficiency with respect to: annual consumption, including use pattern; annual domestic production, actual and potential; annual imports and exports, including countries of origin and destination, stockpiles).

b. Location, nature, and extent of reserves.

c. Location and characteristics of wells, pipelines, storage facilities, and other installations and their relationship to source of supply.

2. Refined petroleum products, including synthetic oil and important substitutes.

a. Strategic supply position (Analyze degree of self-sufficiency with respect to: annual consumption, including use pattern; annual domestic production, actual and potential; annual imports, including principal countries of origin and destination; stockpiles).

b. Location and characteristics of refineries and other installations and their relationship to sources of supply.

Discussion under C1a should show daily and annual production of crude oil in barrels and of natural gas in thousands of cubic feet. Location of oil fields, depth of wells and geologic formations should be shown on accompanying maps. Estimates of reserves of both oil and gas should state how determined. Information on refining of petroleum should include throughput capacity, types of processing equipment, kinds and amounts of products obtained. For synthetic oil plants information

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should be supplied as to kind of process, throughput capacity, kind of feed stock and amount and kind of finished products. Present statistical data in tabular form.

PETROLEUM OUTLINE

I. Introduction

- (a) Scope of survey
- (b) Strategic significance of country in relation to world oil situation
- (c) Summary

II. Exploration - petroleum, related liquids and natural gas

- (a) Summary
- (b) Basic geology - including maps and detailed data as to information sources (include off-shore areas).
- (c) Classification by areas as to prospects - 1 favorable, 2 possible and 3 improbable.
- (d) Exploratory drilling - 1 drilling sites selected by: geology or by geology and magnetometer, seismograph, gravimeter, torsion balance, etc.; 2 geological formations local variation, depths encountered, thickness and characteristics; how recorded - drill cores, side-wall logs, electric logs, etc.
- (e) Evaluation of results - 1 extension of previously known proved reserves, 2 probable new reserves and 3 the likely unproductiveness of further exploration.
- (f) Reserves -
 - Proved (private industry
(nationalized)
 - Probable (private industry
(nationalized)

III. Concessions

- (a) Summary
- (b) Area covered, including that to be turned back as exploration and development proceed (include maps and dates)
- (c) Concessionaire - name, address, nationality, financial resources, experience in petroleum industry, etc.
- (d) Terms (confine to specific concession; general terms treated under Petroleum Laws and Government Policy)
- (e) Development history to date

IV. Production - crude oil and natural gas

- (a) Summary
- (b) History and maps (include off-shore areas)
- (c) Output of crude oil, related liquids and natural gas by companies for 1938, 1943, 1945, 1946, 1947 and 1948
- (d) Character of oil - type, gravity, sulphur content, pour point, and distillation curve
- (e) Types of equipment, drilling methods and appraisal of techniques
- (f) Individual fields
 - 1. Producing horizons - depth and thickness
 - 2. Reservoir characteristics
 - 3. Spacing pattern, number of wells - producers, (flowing and artificial lift) shut-ins, aban-

doned and dry

4. Proved and estimated productive acreage
5. Completion practices
6. Water, corrosion and other problems
7. Weather - influence and operations
8. Accessibility - transportation and communication

(g) Productive capacity

1. Present - within MFR, and maximum
2. Estimated future - within MFR and maximum

V. Refining

(a) Summary

(b) Refineries - description (separate treatment for each refinery)

1. Name, location, type of refinery, ownership, operator, and date on stream
2. Plant layout diagram with each unit including heaters and power plants identified as to function, manufacturer, date of installation, rated capacity (charge or product as appropriate), and comments regarding condition
3. Aerial and ground photography useful in demonstrating plant layout and unit identification or description
4. Plant flow diagram giving quantities, on plant capacity basis, of charge entering and product

leaving each major unit within the plant as well as that entering and leaving the entire refinery. If refinery compliments another for balanced production show interrelationship by flow chart extension

5. Rated crude throughput, cracking capacity (specify whether thermal or catalytic), and capacity for production of aviation gasoline (state TEL susceptibility), hydrocarbon additives, motor gasoline, kerosene, gas and Diesel oils; fuel oil, lubricants (by type), wax, asphalt, coke and auxiliary chemical products. Indicate flexibility of plant to vary yields of different refined products.
6. Data covering new construction, planned expansion or removal.

(c) Refineries - Operation

1. Actual crude throughput and output of the refined products in (b) above for 1938, 1943, 1945, 1946, 1947 and 1948
2. Source of crude oil and cracking stocks and means of transport to refinery
3. Sources, amounts of, and means transport for fuel, water and other supplies required for refinery operations
4. Operating efficiency of refinery - competence of management, technical direction and skilled labor

and cost per barrel of crude and/or feedstocks processed.

(d) Research Program - facilities, objectives and personnel

VI. Synthetics

(a) Summary

(b) Coal, oil coal mixtures and gas as feedstock

1. Plants - Description (separate treatment for each plant)

a Name location, by whom owned and/or operated and date of commencing operations

b Rated throughput of feedstocks and capacity for the production of aviation gasoline, motor gasoline, kerosene, gas and Diesel oils, fuel oil, lubricants, paraffin wax, asphalt, coke and auxiliary products (discuss flexibility of plant to vary yields of different refined products)

c Processes employed (low or high temperature carbonization, hydrogenation, hydrocarbon synthesis, etc.), type of equipment utilized and names of its manufacturers; discuss special plant for the production of auxiliary products (chemicals, fats, etc.), cost of plant per barrel of feedstock treated; include plant layout diagram, plant flow diagram and information on expansion or contraction of plant, and photographs

2. Plant Operations

a Actual throughput of feedstocks and output of

the refined products in (b) above for 1938,
1943, 1945, 1946, 1947 and 1948

b Source of feedstocks and means of transport
to plant

c Sources, amounts of and means of transport for
fuel, water, hydrogen and other supplies re-
quired for plant operation

d Operating efficiency of plant - competence of
management, technical direction and skilled
labor and cost per barrel of feedstock proc-
essed

(c) Oil Shale and Tar Sands

1. Exploration, including location and extent of
reserves

2. Production of shale oil

a History of production, including maps and
characteristics of shale and sand

b Output of shale by companies for 1938, 1943,
1945, 1946, 1947 and 1948

c Mining methods and types of equipment

d Retorting practices and type of equipment

e Output of shale oil by companies for 1938, 1943,
1945, 1946, 1947 and 1948

f Quantity of crude oil per unit of shale retorted
together with analysis

3. Refining of Shale Oil

a Refining methods, type and capacity of equip-

ment

b Output of various refined products by companies for 1938, 1943, 1945, 1946, 1947 and 1948.

c Specifications of refined products

4. Sources, amounts of and means of transport for fuel, water and other supplies required in the mining and retorting of shale and the refining of shale oil
5. Operating efficiency, competence of management, technical direction and skilled labor and cost per ton of shale mined, per barrel crude oil recovered and per barrel of crude oil refined
6. Research Program - facilities, competence of personnel, objectives and attainments

VII. Substitutes

(a) Summary

(b) Motor Fuels

1. Alcohol: kinds utilized and processes employed in manufacture. Raw materials required, quantities of alcohol produced and amounts used straight or in blends as motor fuel in 1938, 1943, 1945, 1946, 1947 and 1948. Acceptable specifications, proportions of alcohol utilized in blends and government regulations covering same
2. Benzol: same as alcohol

3. **Liquified gases:** LPG, coal gas etc., kinds utilized and processes employed in manufacture; amounts produced and quantities used as propellants; description of container and arrangement for feeding gas to engine
4. **Gasogenes:** Name, cost and description of apparatus. Number in use for various applications (automobile, tractor or stationary installation), kinds and quantities of raw materials utilized; comments on operations
- (c) **Diesel Oil** - Raw materials from which manufactured; processes employed; amounts produced and quantities used as propellants; acceptable specifications and performance tests
- (d) **Solid Fuels**
 1. Oil - powdered coal mixtures for steam raising
 2. Powdered fuel for internal combustion engines
- (e) **Lubricants**
 1. Reclaimed oils: processes employed, quantities treated; and quality of final product
 2. Vegetable and animal oils: raw materials from which manufactured, amounts produced; quantities utilized as lubricants, characteristics, acceptable specifications and performance tests
- (f) **Research Program** - facilities, competence of personnel, objectives and attainments

VIII. Storage

- (a) Summary
- (b) Tankage - number, type, location, capacity and material of which constructed at
 - 1. Tank farms
 - 2. Refineries
 - 3. Bulk plants
 - 4. Terminals
- (c) Quantities of crude oil and refined products normally kept in storage
- (d) Protection against fire and military operations

IX. Transportation

- (a) Summary
- (b) Crude Oil - describe movement from well to tank farm, refinery and/or ocean terminal
- (c) Refined products - describe movement from refinery to storage at refinery, tank farm, bulk plant or ocean terminal
- (d) Transport Facilities
 - 1. Pipelines: location, length, diameter, gauge of pipe, and location and description of pumping stations. Crude oil or kinds of refined products handled and daily capacity
 - 2. Railroads (known to carry sizeable quantities of crude oil or refined products): location, track gauge, number and capacity of tank cars, adequacy

and operating condition of other rolling stock,
repair facilities and roadbed

3. Ocean Tankers: number, type, speed, flag, tonnage, carrying capacity, crude oil and kinds of refined products carried, and normal runs
4. Terminal and Port Facilities - depth of water at docks, available space, loading equipment capacity, kind and volume of storage, etc.
5. Container Fabrication Plants - kind and capacities of containers made, output per day, source of raw materials and fuel, etc.
6. Inlandwaterways: number, type, speed, carrying capacity and draft of lake and river tankers and barges, kinds and quantities of crude oil and/or refined products carried, and normal runs
7. Highway: number and carrying capacity of trucks and wagons employed in transporting petroleum and petroleum products and quantities so distributed
8. Principal powers and operators of transportation facilities

X. Foreign Trade

(a) Exports and Re-exports - crude oil and refined products including aviation gasoline, special lubricants, jet fuels and additives for 1938, 1943, 1945, 1946, 1947 and 1948 according to:

1. Place of export
2. Quantities shipped

3. Means of transport

4. Countries and points of destination

- (b) Imports - information comparable to that required under (a) above
- (c) Names of principal consignors and consignees
- (d) Special agreements - trade, reparations, etc.

XI. Consumption

- (a) Civilian - aviation gasoline (segregate below 100 octane from that above) additives, motor gasoline, natural gasoline, kerosene, Diesel and gas oils, fuel oils, lubricants, paraffin wax, asphalt and coke consumed in 1938, 1943, 1945, 1946, 1947 and 1948 by industry, transportation, agriculture and other uses (show use breakdown in detail)
- (b) Military - information comparable to that required under (a) above for the Army, Naval and Air Forces, including a breakdown of aviation gasoline into grades 115/145, 100/130, 91/98, and 73, and jet fuels; Diesel oils into Navy Diesel and other Diesel; and fuel oils into Navy Special and Military Marine Bunker grades and other heavy fuel oils.
- (c) Specifications - covering above products for civilian and military use
- (d) Consuming units - number automobiles, tractors, railroad engines, electric power plants, boats, heating installations, etc., using gasoline, Diesel oil and fuel

oil

XII. Petroleum Laws and Government Policy

(a) Laws and Regulations pertaining to:

1. Granting of concessions
2. Granting of monopolies
3. Ownership of subsoil
4. Organization of oil companies
5. Participation of nationals in management and financial control of foreign companies doing business in the country
6. Taxes
7. Leasing
8. Exploration
9. Transportation
10. Refining
11. Storage
12. Distribution
13. Exports
14. Imports

XIII. Labor

- (a) History (brief) of petroleum labor movement
- (b) Unions - strength, leaders, and political, economic and sociological philosophies
- (c) Affiliation with other organized labor at home and abroad

- (d) Relations with government and oil companies
- (e) Number of workers - classified as to sex, nationality and function
- (f) Worker skill and efficiency
- (g) Availability of labor locally
- (h) Typical labor contracts, including rates of pay for supervisory personnel and important classes of workers

XIV. Oil Companies and Concerns Making Equipment and Supplies for the Petroleum and Related Industries

- (a) Name, nationality, head office, where and when organized
- (b) Type of business organization and authorized capital
- (c) Names and brief biographical sketches of principal officers
- (d) Location of plants and details of products made and/or services performed
- (e) Sources of raw materials and semi-fabricated products
- (f) Principal consumers - name, location, and amounts of equipment and supplies purchased

XV. Sources of Published Information - Describe and Evaluate as to Reliability

- (a) Government
 - 1. Comprehensive surveys
 - 2. Periodic reports
 - 3. Miscellaneous
- (b) Private
 - 1. Trade journals
 - 2. News letters and special services

3. Newspapers covering petroleum industry
4. Books and pamphlets by recognized authorities
5. Oil company periodic financial statements
6. Magazines and newspapers, not devoted exclusively to petroleum, but having a sustained interest in oil

(c) Name and Address of Publisher and Purchase Price of above Information Materials